Dear Sir:

Please preliminarily amend the above-identified application as follows:

IN THE CLAIMS

Please substitute pending claim 4 with the amended claim 4 set forth below:

4. The system of claim 1 wherein the transmission line supports G.shdsl PAM-16 coding and supports a transmission rate of approximately 1.544 Mbps.

Please substitute pending claim 14 with the amended claim 14 set forth below:

14. The method of claim 10 wherein the transmission line supports G.shdsl PAM-16 coding and supports a transmission rate of approximately 1.544 Mbps.

Please substitute pending claim 20 with the amended claim 20 set forth below:

20. The method of claim 10 further including the step of coupling a second repeater between either of the first and second ends of the transmission line and the at least one repeater, wherein the distance between the second repeater and the at least one repeater is approximately 9,000 feet.

Please add the following new claims:

21. The system of claim 1 wherein the remote transmission unit further includes a low pass filter.

22. The system of claim 21 wherein said low pass filter is configured to combine an ADSL signal and a POTS signal onto a twisted pair.

23. The system of claim 1 wherein each of said ADSL links coupled to a respective one of said plurality of customer premise equipments may be configured to support a substantially minimum data rate of approximately 384 kbps.

24. The system of claim 23 wherein each of said ADSL links may be configured to support a data rate of up to approximately 1.544 Mbps.

25. The system of claim 23 wherein said plurality of customer premise equipments includes four customer premise equipments, each coupled to said remote termination unit via said respective ADSL links, and further, wherein each of said four ADSL links may be configured to simultaneously support said data rate of approximately 384 kbps.

26. The system of claim 23, wherein each of said ADSL links may be configured to instantaneously burst to a data rate of up to approximately 1.544 Mbps.

27. The system of claim 1, wherein said at least one repeater comprises an add/drop repeater.

28. The method of claim 10 wherein said second repeater comprises a second add/drop repeater.

29. The system of claim 1 further including:

a data bus coupled to said line card configured receive bit streams of decoded ATM data from said line card;

an ATM switch coupled to a data network; and

an ATM controller coupled to said data bus configured to receive said data bit streams from said data bus, said ATM controller further configured to connect said ATM switch via an ATM link for communication with said network.

30. The system of claim 29 wherein said ATM controller is further configured to generate clock and transmission information.

31. The system of claim 29 wherein said ATM switch includes a singe ATM link.

32. The system of claim of claim 29 wherein said ATM switch is configured to perform bandwidth management.

33. The system of claim 29 wherein said data bus includes a TDM backplane bus.

34. The system of claim 33 wherein said TDM backplane may be 8 bits wide.

35. The system of claim 1, wherein said line card includes a plurality of two-wire connections, said system further including:

a DSLAM including a plurality of ADSL ports, each of said plurality of ADSL ports coupled to a corresponding two-wire connection of said line card, said line card further configured to convert said received ATM data into ADSL data format for transport over said respective two-wire connections to the corresponding ADSL port of said DSALM; and

an ATM switch coupled to a data network, said ATM switch further - coupled to said DSLAM for connection to said data network.

36. The system of claim 35 wherein said line card and said DSLAM reside in the same central office.

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37. The system of claim 35 wherein said line card includes four, two-wire connections, and further, said DSLAM includes four corresponding ADSL ports.

Clean set of pending claims

A data loop extension for a communication system, comprising:

1.   a symmetric bi-directional transmission line having a first end and a second end;

a remote termination unit coupled between the first end of the transmission line and a plurality of customer premise equipment, the remote termination unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

a line card coupled to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line; and

at least one repeater coupled between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card.

2.   The system of claim 1 wherein the repeater and the remote termination unit are line powered over the transmission line.

3.   The system of claim 1 wherein the repeater is a symmetric straight-through repeater, and further, wherein the repeater is configured to detect ATM data received from either the first or the second end of the transmission line, and to regenerate the ATM data for transmission to the respective other of the first and second end of the transmission line.

4.   The system of claim 1 wherein the transmission line supports G.shdsl PAM-16 coding and supports a transmission rate of approximately 1.544 Mbps.

5. The system of claim 1 wherein the transmission line is a 26 gauge bi-directional single twisted copper pair, and further, wherein the distance between each ADSL link between the line card and the customer premise equipment is approximately 41,000 feet.

6. The system of claim 1 wherein each ATM data is 53 bytes in length.

7. The system of claim 1 further including a power supply unit coupled to the line card configured to provide approximately 30 watts to the transmission line.

8. The system of claim 1 further including an alarm card unit coupled to the line card for providing alarm information.

9. The system of claim 8 wherein the alarm information includes information related to data channels out of service.

10. The system of claim 1 further including a second repeater coupled between either of the first and second ends of the transmission line and the at least one repeater, wherein the distance between the second repeater and the at least one repeater is approximately 9,000 feet.

11. A method of providing a data loop extension in a communication system, comprising the steps of:

providing a symmetric bi-directional transmission line having a first end and a second end;

coupling a remote termination unit between the first end of the transmission line and a plurality of customer premise equipment, the remote termination

unit configured to receive a plurality of ATM data from each customer premise equipment over a respective ADSL link for transmission over the transmission line;

coupling a line card to the second end of the transmission line configured to receive the ATM data transmitted from the remote termination unit over the transmission line; and

coupling at least one repeater between the first and second end of the transmission line configured to detect the ATM data received from the remote termination unit and to regenerate the ATM data for transmission to the line card.

12.   The method of claim 10 further including the step of line powering the at least one repeater and the remote termination over the transmission line.

13.   The method of claim 10 wherein the repeater is a symmetric straight-through repeater, and further including the step of detecting ATM data received from either the first or the second end of the transmission line, and regenerating the ATM data for transmission to the respective other of the first and second end of the transmission line.

14.   The method of claim 10 wherein the transmission line supports G.shdsl PAM-16 coding and supports a transmission rate of approximately 1.544 Mbps.

15.   The method of claim 10 wherein the transmission line is a 26 gauge bi-directional single twisted copper pair, and further, wherein the distance between each ADSL link between the line card and the customer premise equipment is approximately 41,000 feet.

16.   The method of claim 10 wherein each ATM data is 53 bytes in length.

17.   The method of claim 10 further including the step of coupling a power supply unit to the line card to provide approximately 30 watts to the transmission line.

18.   The method of claim 10 further including the step of coupling an alarm card unit to the line card for providing alarm information.

19.   The method of claim 18 wherein the alarm information includes information related to data channels out of service.

20.   The method of claim 1 further including the step of coupling a second repeater between either of the first and second ends of the transmission line and the at least one repeater, wherein the distance between the second repeater and the at least one repeater is approximately 9,000 feet.

21.   The system of claim 1 wherein the remote transmission unit further includes a low pass filter.

22.   The system of claim 21 wherein said low pass filter is configured to combine an ADSL signal and a POTS signal onto a twisted pair.

23.   The system of claim 1 wherein each of said ADSL links coupled to a respective one of said plurality of customer premise equipments may be configured to support a substantially minimum data rate of approximately 384 kbps.

24.   The system of claim 23 wherein each of said ADSL links may be configured to support a data rate of up to approximately 1.544 Mbps.

25.   The system of claim 23 wherein said plurality of customer premise equipments includes four customer premise equipments, each coupled to said remote termination unit via said respective ADSL links, and further, wherein each of said four ADSL links may be configured to simultaneously support said data rate of approximately 384 kbps.

26.   The system of claim 23, wherein each of said ADSL links may be configured to instantaneously burst to a data rate of up to approximately 1.544 Mbps.

27.   The system of claim 1, wherein said at least one repeater comprises an add/drop repeater.

28.   The method of claim 10 wherein said second repeater comprises a second add/drop repeater.

29.   The system of claim 1 further including:

a data bus coupled to said line card configured receive bit streams of decoded ATM data from said line card;

an ATM switch coupled to a data network; and

an ATM controller coupled to said data bus configured to receive said data bit streams from said data bus, said ATM controller further configured to connect said ATM switch via an ATM link for communication with said network.

30. The system of claim 29 wherein said ATM controller is further configured to generate clock and transmission information.

31. The system of claim 29 wherein said ATM switch includes a singe ATM link.

32. The system of claim of claim 29 wherein said ATM switch is configured to perform bandwidth management.

33. The system of claim 29 wherein said data bus includes a TDM backplane bus.

34. The system of claim 33 wherein said TDM backplane may be 8 bits wide.

35.   The system of claim 1, wherein said line card includes a plurality of two-wire connections, said system further including:

a DSLAM including a plurality of ADSL ports, each of said plurality of ADSL ports coupled to a corresponding two-wire connection of said line card, said line card further configured to convert said received ATM data into ADSL data format for transport over said respective two-wire connections to the corresponding ADSL port of said DSALM; and

an ATM switch coupled to a data network, said ATM switch further coupled to said DSLAM for connection to said data network.

36.   The system of claim 35 wherein said line card and said DSLAM reside in the same central office.

37.   The system of claim 35 wherein said line card includes four, two-wire connections, and further, said DSLAM includes four corresponding ADSL ports.

REMARKS

Reconsideration is respectfully requested. Claims 1-37 are now pending. Claims 1-20 were initially presented with the original filing of this application. Claims 4, 14, and 20 have been amended to correct minor typographical errors. Newly added claims 21-37 are presented to further particularly point out and claims that which the Applicants considers the invention.

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